1873MNRAS..33..406W

lucentibus, et sic exul, amissaque luna perstitit uno quadrante paulo plus." *

I have omitted seven other lunar eclipses mentioned in the *Chronicle* as the dates given agree with the calculation, and they present no special feature of interest. The total solar eclipses of 1133 and 1140 have been so thoroughly described by Mr. Hind that there is no need to refer to them. In each case by projecting for London with elements from these tables, I obtain a small crescent at the south of the Sun's disk.

Upton-Helions Rectory, Crediton, Devon,
February 22.

Note on the Distribution of Resolvable and Irresolvable Nebulæ. By Sidney Waters, Esq.

(*From a Letter to Mr. R. A. Proctor.*)

Whilst studying the nebulæ and their distribution it occurred to me that if the resolvable and irresolvable nebulæ were charted down with some prominent distinctive characteristic, light would be thrown on the question, 'Is resolvability any test for distance?'

Lately I have begun to test this, and have met with such remarkable results that I am induced to trouble you with a few remarks. First, I would state that I copied the meridians and parallels laid down on Map 2 of your large Atlas, only altering the hours of R.A. from 22, 23, 24, &c., to 10, 11, 12, &c., it appearing that this map then included the most interesting nebular regions; and, further, having marked in the meridians and parallels to every 4 minutes in R.A., and every degree in N.P.D., I plotted in the nebulæ from Herschel's catalogue, marking in the resolvable nebulæ in red ink, the irresolvable nebulæ in black (by resolvable I include all objects marked *r*, *r r*, *r r r*, *e r*, Cl). This done, a glance shows, that there is a most remarkable connexion between the resolvables and the irresolvables, that where the irresolvables cluster there also do the resolvables.

The following statement seems to confirm this view. The whole map contains about 1284 nebulæ, of which 157 are resolvable; this is about the proportion of 10 resolvables to 80 irresolvables.

A space bounded by R.A., 12^h and 13^h, and N.P.D. 70° and 90°, contains 266 nebulæ, of which 49 are resolvable; this is in about the proportion of 10 to 54, but this space occupies only about $\frac{1}{15}$th of the map, so that if the nebulæ were as richly spread

---

* In the Eclipse of July 12, 1870, I noticed the Moon's disk much duller and the coppery tinge much fainter than is usual during totality. From 9.55 to 10.15 I was unable to detect some portions of the eastern limb, either with the naked eye or telescope.

Downloaded from http://mnras.oxfordjournals.org/ by guest on March 15, 2016

© Royal Astronomical Society • Provided by the NASA Astrophysics Data System

1873MNRAS..33..406W

in other parts, there would be in the map 3990 instead of 1284 observed; and if the resolvables were as richly spread we should have 735 instead of 157 observed. It will be seen that while this small space is extraordinarily rich in irresolvable nebulæ, its richness in resolvable nebulæ not only increases in proportion, but in a far greater ratio. (I may note that if the richness of the whole heavens were compared with the richness of this small space, the contrast would be even more striking.)

The coincidence of this great cluster of irresolvable nebulæ with the relatively greater cluster of resolvable nebulæ of course cannot be ascribed to chance.

I have not found that this close association between resolvable and irresolvable nebulæ has been noticed before, although you advocate the conclusion to which it points on more general grounds in your paper in 1869 (Supplementary Number of the *Monthly Notices*).

Oakhurst Lodge, Tufnell Park,
Holloway, N., *March* 8, 1873.

The Meteor Shower of 1872, *November 27th.*

By Professor George Forbes.

Seeing that this shower probably had an intimate connexion with Biela's Comet, I laid before me three objects :—the determination of the radiant-point, the indication of the tracks of more brilliant meteors, and data for determinating their velocity.

1. *Determination of the radiant-point.* Being desirous of determining not merely the point of radiation, but also whether the radiation were good, I proceeded in the following manner. I marked in my note-book, as accurately as possible, the positions of the chief stars in *Cassiopeia*, *Perseus*, and *Andromeda*. Upon this were drawn the tracks of *all* the meteors coming within that range (except when several appeared at the same instant). After observing in this manner for three hours, those alone were marked that appeared close to the point of radiation.

The tracks were afterwards carefully copied on an accurate star-map, and the lines indicating the paths were produced backwards through the point of radiation. In this manner the radiant-point can be determined by the relative blackness caused by so many black lines intersecting. Hence nothing is left to the eye's judgment. 112 tracks were thus treated. The chart was photographed, and a copy is forwarded herewith. The parallels of North Declination 45° and 50° are indicated, as also the lines of R.A. from 1^h to 2^h. The densest part of the intersection of black lines is at R.A. = $1^h\ 35^m$, N. Decl. 46°. This I conclude is the radiant-point. A perfectly stationary meteor appeared at R.A. $1^h\ 40^m$, N. Decl. 46°.

The radiation is on the whole good. That is to say, there are few meteors whose tracks diverge far from this point.

Downloaded from http://mnras.oxfordjournals.org/ by guest on March 15, 2016

© Royal Astronomical Society • Provided by the NASA Astrophysics Data System